35. (new)   A method as claimed in claim 23, further comprising determining a position of said objects in said item under inspection.

36. (new)   A method as claimed in claim 24, further comprising recommending a rehabilitation technique based on said report and a set of attributes of said item under inspection.

37. (new)   A method as claimed in claim 36, wherein said attributes are part of a group comprising technical requirements, contractual requirements, and cost effectiveness.

38. (new)   A method as claimed in claim 36, wherein a plurality of rehabilitation techniques are recommended.

39. (new)   A method as claimed in claim 38, further comprising ranking said plurality of recommended rehabilitation techniques.
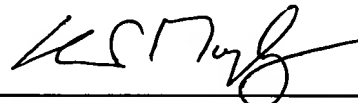
- REMARKS -

No new matter was added as a result of the above preliminary and voluntary amendment.

Applicants believe all of the newly submitted claims are fully supported by the specification.

Respectfully submitted,

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Marked up copy of claims in accordance with 37CFR§1.121(c)(ii)

~~1. A method for detecting a defect on a portion of an element comprising:~~

~~acquiring an image of said portion;~~

~~analyzing said image to highlight problematic regions of said portion;~~

~~calculating a probability that said problematic region is a defect;~~

~~if said probability is higher than a threshold value, determining a position of said defect on said element.~~

~~2. A method for classifying a defect on an element, comprising:~~

~~acquiring an image of said defect;~~

~~calculating a probability that said defect corresponds to one of a series of types of defects;~~

~~if said probability is higher than a threshold value, determining that said defect is a defect of that particular type.~~

~~3. A method for recommending a most suitable rehabilitation technique for a defect, comprising:~~

~~identifying a series of parameters corresponding to said defect;~~

~~calculating a relative utility for each of a series of potential rehabilitation techniques using rehabilitation profiles;~~

~~determining a most suitable rehabilitation technique for said defect corresponding to a highest value of said relative utility.~~

4. <u>A method for detecting a plurality of defects in an item under inspection comprising:</u>

<u>acquiring at least one image of said item;</u>

<u>providing a plurality of neural networks, at least one of said plurality of neural networks corresponding to each one of said plurality of defects to be detected;</u>

processing said at least one image to produce a processed image having objects isolated from an image background of said image; and

inputting said processed image into said plurality of neural networks to obtain information concerning corresponding defects.

5.   A method as claimed in claim 4, further comprising issuing a report using said information concerning said defects.

6.   A method as claimed in claim 4, wherein said plurality of neural networks further comprises sets of neural networks used for counter-checking results, each one of said sets of similar neural networks corresponding to each one of said plurality of defects to be detected.

7.   A method as claimed in claim 4, wherein processing said at least one image further comprises processing said at least one image according to a selected set of image analysis techniques, said set of image analysis techniques selected as a function of said defects to be detected.

8.   A method as claimed in claim 7, wherein n sets of neural networks are used to detect n types of defects.

9.   A method as claimed in claim 8, wherein:

said item under inspection is a sewer pipe;

n corresponds to 5; and

said plurality of defects are deposits, cross-sectional reductions, misalignments, infiltration, and cracks.

10.   A method as claimed in claim 9, wherein deposits, cross-sectional reductions, and misalignments correspond to a first set of image analysis techniques, infiltration

corresponds to a second set of image analysis techniques, and cracks correspond to a third set of image analysis techniques.

11.   A method as claimed in claim 10, wherein said first set of image analysis techniques comprises the operations of inversion, dilation, background subtraction, thresholding, segmentation, and analysis.

12.   A method as claimed in claim 10, wherein said second set of image analysis techniques comprises the operations of dilation, background subtraction, thresholding, segmentation, and analysis.

13.   A method as claimed in claim 10, wherein said third set of image analysis techniques comprises the operations of background subtraction, edge detection, dilation, thresholding , and analysis.

14.   A method as claimed in claim 4, wherein said neural networks are back-propagation neural networks.

15.   A method as claimed in claim 4, wherein said acquiring an image comprises using a closed circuit television camera and a videotape.

16.   A method as claimed in claim 13, wherein said videotape is digitized.

17.   A method as claimed in claim 6, wherein each set of neural networks comprises at least three neural networks used for counter-checking results.

18.   A method as claimed in claim 4, further comprising determining a position of said objects in said item under inspection.

19. A method as claimed in claim 5, further comprising recommending a rehabilitation technique based on said report and a set of attributes of said item under inspection.

20. A method as claimed in claim 19, wherein said attributes are part of a group comprising technical requirements, contractual requirements, and cost effectiveness.

21. A method as claimed in claim 19, wherein a plurality of rehabilitation techniques are recommended.

22. A method as claimed in claim 21, further comprising ranking said plurality of recommended rehabilitation techniques.

23. A method for detecting a selected defect in an item under inspection comprising:

acquiring an image of said item;

providing a neural network for detecting said selected defect;

selecting a set of image analysis techniques as a function of said selected defect;

processing said image according to said selected set of image analysis techniques for said selected defect to produce a processed image having objects isolated from an image background of said image;

inputting said processed image to said neural network to obtain information corresponding to said selected defect.

24. A method as claimed in claim 23, further comprising issuing a report based on outputs produced by said neural network.

25. A method as claimed in claim 23, wherein said providing a neural network further comprises providing a set of neural networks, said set of neural networks being used for counter-checking results.

26. A method as claimed in claim 25, wherein said set of neural networks comprises three neural networks.

27. A method as claimed in claim 23, wherein said selected defect is selected from a group comprising deposits, cross-sectional reductions, misalignments, infiltration, and cracks.

28. A method as claimed in claim 27, wherein deposits, cross-sectional reductions, and misalignments correspond to a first set of image analysis techniques, infiltration corresponds to a second set of image analysis techniques, and cracks correspond to a third set of image analysis techniques.

29. A method as claimed in claim 28, wherein said first set of image analysis techniques comprises the operations of inversion, dilation, background subtraction, thresholding, segmentation, and analysis.

30. A method as claimed in claim 28, wherein said second set of image analysis techniques comprises the operations of dilation, background subtraction, thresholding, segmentation, and analysis.

31. A method as claimed in claim 28, wherein said third set of image analysis techniques comprises the operations of background subtraction, edge detection, dilation, thresholding , and analysis.

32.   A method as claimed in claim 23, wherein said neural network is a back-propagation neural network.

33.   A method as claimed in claim 23, wherein said acquiring an image comprises using a closed circuit television camera and a videotape.

34.   A method as claimed in claim 33, wherein said videotape is digitized.

35.   A method as claimed in claim 23, further comprising determining a position of said objects in said item under inspection.

36.   A method as claimed in claim 24, further comprising recommending a rehabilitation technique based on said report and a set of attributes of said item under inspection.

37.   A method as claimed in claim 36, wherein said attributes are part of a group comprising technical requirements, contractual requirements, and cost effectiveness.

38.   A method as claimed in claim 36, wherein a plurality of rehabilitation techniques are recommended.

39.   A method as claimed in claim 38, further comprising ranking said plurality of recommended rehabilitation techniques.